REMARKS

Rejections under 35 U.S.C. §102(e)

Claims 1 and 14 were rejected under 35 U.S.C. §102(e) as being anticipated by Ginjpalli (&,120,151).

The Applicant and the Examiner continue to disagree over whether the teachings of Ginjpalli describe or suggest the limitations of the claimed invention. Applicant has carefully considered the Examiner's remarks, and noted that a critical difference between the Examiner's interpretation of Ginjpalli and the claims is that the Examiner has determined that the claims of the present invention may include an 'intermediate node' that is part of both the primary and the backup path. In contrast, the goal of the present invention is to handle situations when the intermediate node, which typically manipulates the label stack in an expected way, fails, and the backup path needs to be used. The present invention pre-conditions as it travels through the backup path with the expected manipulations, to ensure that the label path can be accurately provided at the destination. Applicant has amended the claims to further clarify that the backup path routes *around* the intermediate node.

Thus, although the Examiner has interpreted Ginjpalli to have a primary path beginning at a first node (100) and ending at a second node (115), and an intermediate node (110), and a backup path between the first node and the second node that includes node 130, the claims of the present invention have been amended to make it clear that the backup path of Ginjpalli is fundamentally different than that of the claimed invention.

Ginjpalli:

Ginjpalli describes a method for fast label switchover wherein two or more virtual circuit (VC) labels associated with a tunnel label are mapped to a group identifier (GID). The tunnel label is mapped to the GID in a GID table. When the two or more VC labels are to be associated with a new tunnel label, the tunnel label in the GID table is changed to a new tunnel label.

Ginjpalli also describes a link protection process which is 'configured on a per link basis and the backup link may be preconfigured.' At column 5, lines 10 –35 Ginjpalli describes:

"...A link is controlled by the end routers associated with that link. When a link fails, link reroute to a backup link can be performed. ...When the LSR 110 recognizes that the link between it and the LSR 115 fails, the LSR 110 may reroute the datagrams intended to be forwarded to the LSR 115 to the LSR 130. This is done using a backup link between the LSR 110 and the LSR 130. Note that this requires pushing a backup label 206 onto the label stack above the tunnel label 106. Except for the backup label 206, the format of the datagram to be transmitted between the LSR 110 and the LSR 115 remains the same when that datagram is forwarded from the LSR 110 to the LSR 130. Thus, the LSR 110 swaps the tunnel label 104 with the tunnel label 106 (as before) but also pushes the backup label 206 on the top of the label stack. The LSR 130 recognizes that the backup label is on top of the label stack, removes it from the label stack, and forwards the datagram to the LSR 115. The LSR 115 receives the identical datagram from the LSR 130 as it would receive from the LSR 110. The process of rerouting from one link to a backup link is referred to as a link protection process. Typically, link protection is configured on a per link basis and the backup link may be preconfigured.

Accordingly, Ginjpalli describes a **link** protection system which places a backup tunnel label on top of a datagram prior to forwarding the datagram over the backup link. The backup LSR then strips of the backup tunnel label, and forwards the datagram onto the LSR at the other end of the failed link. As stated by Ginjpalli, the protection is configured on a **per link** basis. Applicant respectfully notes that there is no intermediate node between the node 110 and 115, in the 'primary' path of Ginjpalli.

In contrast, the claimed invention is directed towards a a method "of providing backup resources for a primary label switched path (LSP) in a label switching network, the primary LSP

having at least a portion for transmitting data packets containing a label stack from a first label switching node to a second label switching node, *said portion including at least one intermediate label switching node between the first and second nodes ...* and , *the at least one backup LSP for re-routing data packets around the at least one intermediate label switching node in the event of a failure of the intermediate label switching node"* Thus the present invention is not restricted to a single link path, but explicitly claims a label switched path that includes an intermediate node, which is routed around by the backup path. In fact, as described in Applicant's disclosure, the present invention seeks to address the problems of the prior art label switched paths which traverse intermediate nodes, which is described at page 2 of Applicant's specification as:

"... The backup LSP may also span more than two successive links of the protected LSP. For example, in the previous case, the two LSPs may merge in router D. This may provide the path recovery function in cases where the failure detected by B occurs in router C. However, it is inoperative whenever backup LSP bypasses a LSR which performs some action on the MPLS label stack (pushing, popping, swapping). In our example, if C changes the label stack, D will not get the packets with the correct labels along the backup LSP and therefore will not switch or process them as required..."

Independent claims 1 and 14 of the present invention have been amended to more clearly recite that the transformation includes transformations to the label stack that are performed by the intermediate node. For example, Claims 1 and 14, as amended, now recites that "...*the transformation including label stack manipulations performed by the at least one intermediate label switching node* ... and , *the at least one backup LSP for re-routing data packets around the at least one intermediate label switching node in the event of a failure of the intermediate label switching node"* No such structure is shown or suggested by Ginjpalli, which provides link protection merely on a per link basis.

Accordingly, for at least the reason that Ginjpalli fails to disclose or suggest every

limitation of claims 1 and 14, it is requested that the rejection be withdrawn.

Rejections under 35 U.S.C. §103(a)

Claims 1-26:

Claims 1-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lee

(6,904,018) in view of Ginjpalli.

1. Combination neither discloses nor suggests the invention of claims 1-26

Lee:

Lee (US 6,904,018) discloses a method for high speed rerouting in a MPLS network. This

method more particularly relates to the protection and recovering of a multipoint to point label

switch path or LSP, by contrast with a point to point LSP (e.g. col.2, l.56-61 and col.3, l.44-47).

According to the method disclosed by Lee, a backup LSP comprising a point to

multipoint reverse anycast tree is set and a traffic stream is transferred, at a LSR sensed a failure,

through the reverse anycast tree by looping back the traffic stream in a reverse direction when a

failure occurs in a link in the MPLS network (see claim 1).

Lee describes, at column 3, lines 62-67:

"...To achieve the above object, there is provided a method for high speed rerouting in a
multi protocol label switching (MPLS) network, the method comprising the steps of controlling a
traffic stream to flow in a reverse direction in a point where node or link failure occurs by using a
backup Label Switched Path (LSP) comprising an Explicitly Routed (ER) LSP having a reverse
tree of a protected multipoint-to-point LSP and an ingress LSR through an egress LSR."

Thus Lee describes a method which uses Explicit Routing to identify a reverse path.

Applicants note that no mention is made, in Lee of transforming a label stack to provide

consistency between a first label stack and a second label stack, as now more clearly recited in Applicant's claimed invention.

The Examiner states, at page 3 of the office action:

"… It would have been obvious to use Ginjpalli's label stacks and label stack transformations in Lees system in order to quickly recover from node failure with little delay and only slight stack modification…"

Applicants' respectfully submit that the solutions provided by Lee and by Ginjpalli do nothing to overcome the problems of the prior art, as they do not perform the steps of the claimed invention of "...configuring at least one node of the backup LSP to process the label stack of any packet transmitted along the backup LSP to apply the same transformation to the label stack on the backup LSP as applied on said portion of the primary LSP so that the label stack received from the backup LSP at an input to the second label switching node corresponds to the label stack received from the portion of the primary LSP at the input of the second label switching node...." where the transformation includes label stack manipulations performed by intermediate nodes and wherein , the at least one backup LSP for re-routing data packets around the at least one intermediate label switching node in the event of a failure of the intermediate label switching node.

Although the Examiner states, at page 4 of the office action, that Lee teaches 'the same transformation as said transformation of the label of a packet along said portion of the primary LSP....' Applicant respectfully submits that the amendments to the claims clearly distinguish over the Examiner's previous interpretation of 'transformation', as provided at page 2 of the office action.

Applicants claims clearly distinguish over the mere changing of router identifier that is provided in Lee. For example, independent claim 1 now recites the step of "...configuring at least one node of the backup LSP to transform the label stack of any packet transmitted along the backup LSP by applying the same transformation to the label stack on the backup LSP as applied on said portion of the primary LSP so that the label stack received from the backup LSP at an input to the second label switching node corresponds to the label stack received from the portion of the primary LSP at the input of the second label switching node..." where the transformation includes label stack manipulations by intermediate nodes and , the at least one backup LSP for re-routing data packets around the at least one intermediate label switching node in the event of a failure of the intermediate label switching node. Neither Lee nor Ginjpalli, alone or in combination, describe or suggest such a limitation, and as such claim 1 is patentably distinct over the combination of references, and it is requested that the rejection be withdrawn. Independent claim 14 includes similar limitations and is therefore allowable for reasons similar to those provided for claim 1.

Dependent claims 2-13 serve to add further patentable limitations to claim 1 and dependent claims 15-27 serve to add further patentable limitations to claim 14. For example, claims 2 and 15 now each recite that the transformations include label swap and label popping manipulations. No such structure is shown by the combination of Lee and Ginjpalli. In addition, claims 2-13 and 15-27 are allowable for at least the reason that they depend from an allowable parent claim, as described above.

Conclusion

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Applicants' Attorney at the number listed below so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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